



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,015	07/24/2003	Nam-Seog Kim	8836-201 (ID12049US)	9966
22150	7590	11/03/2004	EXAMINER	
F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			CHO, JAMES HYONCHOL	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/626,015

Applicant(s)

KIM ET AL.

Examiner

James Cho

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 18 and 20 is/are rejected.
- 7) ☒ Claim(s) 3-17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7-24-03 *gsh*
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Sundstrom (US PAT No. 5,602,494).

Regarding claim 1, Fig. 2 of Sundstrom teaches an integrated circuit (200) connected to a transmission line (190), the integrated circuit comprising: a driver (220) including a plurality of driving units (221<sub>1-N</sub> and 222<sub>1-N</sub>) for outputting data to the transmission line and receiving data from the transmission line; and a controller (210) for applying a plurality of control signals to the driver, the control signals being generated in response to an output activation signal (OEM, OEH, OEL) and at least one impedance code signals (BD, BM, B(1...N)) related to states of the impedance of the transmission line, wherein at least one driving unit is driven in response to the control signals, and the driver includes an on-chip termination circuit (col. 5, lines 16-26) for impedance matching external devices.

Regarding claim 2, Fig. 2 of Sundstrom teaches the integrated circuit of claim 1, wherein the driver includes a first driving unit (221<sub>1</sub> and 222<sub>1</sub>) and a second driving unit (221<sub>N</sub> and 222<sub>N</sub>) commonly connected to the transmission line.

Regarding claim 18, Figs. 2 and 3 of Sundstrom teaches an integrated circuit (200) inputting/outputting data through a transmission line (190), the integrated circuit device comprising: a circuit (790<sub>1</sub>) for generating a first up driving control signal (105<sub>1</sub>) from an output data signal (OUT) in response to an output activation signal (OE<sub>H</sub>, OE<sub>L</sub>, OE<sub>M</sub>); a circuit (750<sub>1</sub>) for generating a first down driving control signal (106<sub>1</sub>) from the output data signal in response to the output activation signal; a circuit (790<sub>N</sub>) for generating a second up driving control signal (105<sub>N</sub>) from the output data signal in response to the output activation signal; a circuit (750<sub>N</sub>) for generating a second down driving control signal (106<sub>N</sub>) from the output data signal in response to the output activation signal; first PMOS transistor circuit (221<sub>1</sub>) for connecting a power supply voltage with the transmission line in response to the first up driving control signal; first NMOS transistor circuit (222<sub>1</sub>) for connecting the transmission line with a ground voltage in response to the first down driving control signal; second PMOS transistor circuit (221<sub>N</sub>) for connecting the power supply voltage with the transmission line in response to the second up driving control signal; and second NMOS transistor circuit (222<sub>N</sub>) for connecting the transmission line with the ground voltage in response to the second down driving control signal, wherein the first and second PMOS transistor circuits and the first and second NMOS transistor circuits are selectively driven in response to the

Art Unit: 2819

first and second up driving control signals and the first and second down driving control signals according to states of the output data signals at the data output operation, and the second PMOS transistor circuit and the second NMOS transistor circuit are simultaneously driven at the data input operation (col. 5, lines 15-50).

Regarding claim 20, Figs. 2 and 3 of Sundstrom teaches a method for matching impedance for an integrated circuit connected to a transmission line comprising: generating control signals ( $105_1 \dots 105_N$ ,  $106_1 \dots 106_N$ ) in response to an output activation signal (OEM, OEH, OEL) and at least one impedance code signals (BD, BM, B91...N)) related to states of the impedance of the transmission line; selectively activating one or more driving units in the integrated circuit for outputting data to the transmission line; and when receiving data at the transmission line from an external device, activating on-chip termination circuit in the integrated circuit for impedance matching the external device (col. 5, lines 15-50).

***Allowable Subject Matter***

Claims 3-17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Although Sundstrom (US PAT No. 5,602,494) teaches a bi-directional programmable I/O cell, one of ordinary skill in the art would not have been motivated to modify the teaching of Sundstrom to further includes, among other things, the specific of

Art Unit: 2819

a circuit for generating a third up driving control signal in response to the output activation signal, the output data signal and a first impedance code signal; a circuit for generating a fourth up driving control signal in response to the output activation signal, the output data signal, the first impedance code signal and a second impedance code signal, etc., as set forth in the claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wu et al. (US PAT No. 6,690,191) discloses a bi-directional output buffer including active termination and separate driving and receiving impedances.

Kim et al. (US PAT No. 6,642,740) discloses a programmable termination circuit.

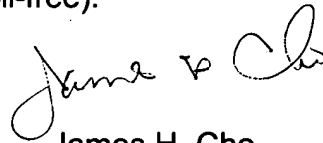
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Cho whose telephone number is 571-272-1802.

The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2819

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James H. Cho  
Primary Examiner  
Art Unit 2819

Date: October 27, 2004